

CLAIMS

I claim:

1. A timer for controlling the activation of a load during repeating cycles, the timer including:

a control unit having an internal timer;

a relay unit connected between the control unit and the load,

5 wherein the control unit activates the relay unit to supply power to the load;

a time base dial coupled to the control unit, the time base dial movable between a plurality of discrete time base settings to set the duration of the repeating cycle in the control unit, wherein the time base settings increase non-linearly from a minimum setting to a maximum setting; and

10 a duty cycle dial coupled to the control unit, the duty cycle dial movable between a plurality of discrete duty cycle settings to set the percentage of actuation time of the load during each cycle in the control unit.

2. The timer of claim 1 wherein the duty cycle settings increase linearly from a minimum setting to a maximum setting.

3. The timer of claim 1 wherein the duty cycle settings increase non-linearly from a minimum setting to a maximum setting.

4. The timer of claim 3 wherein the minimum setting is 0% and the maximum setting is 100%, and wherein the amount of increase in the percentage between successive duty cycle settings is smaller near both the minimum setting and the maximum setting and larger near a midpoint between the minimum and maximum settings such that the duty cycle dial has greater resolution near the minimum and maximum settings.

5. The timer of claim 3 wherein the increase in value between successive duty cycle settings increases exponentially from the minimum setting to the maximum setting.

6. The timer of claim 1 wherein the maximum time base setting is at least as large as 24 hours and the minimum time base setting is at least as small as 30 seconds.

7. The timer of claim 1 wherein the time base dial is a digital switch defining thirty-two discrete time base settings.

8. The timer of claim 1 wherein the time base settings increase generally exponentially between the minimum setting and the maximum setting.

9. A timer for controlling the activation of a load during repeating cycles, the timer including:

a time base dial movable between a plurality of discrete time base settings between a maximum setting and a minimum setting;

5 a duty cycle dial movable between a plurality of discrete duty cycle settings between a maximum setting and a minimum setting;

a control unit coupled to both the time base dial and the duty cycle dial, the control unit assigning a time base value to each time base setting and a duty cycle value to each duty cycle setting, wherein the time base values increase

10 non-linearly from the minimum time base setting to the maximum time base setting; and

15 a relay unit coupled between the control unit and the load, the relay unit being activated by the control unit to supply power to the load based upon the time base value and the duty cycle value corresponding to the current settings of the time base dial and the duty cycle dial.

10. The timer of claim 9 wherein the duty cycle values increase linearly from the minimum duty cycle setting to the maximum duty cycle setting.

11. The timer of claim 9 wherein the duty cycle values increase non-linearly from the minimum duty cycle setting to the maximum duty cycle setting.

12. The timer of claim 11 wherein the minimum duty cycle value is 0% and the maximum duty cycle value is 100%, and wherein the amount of increase in the duty cycle value between successive duty cycle settings is smaller near both the minimum duty cycle setting and the maximum duty cycle setting

5 and the amount of increase in the duty cycle value between successive duty cycle settings is larger near a midpoint between the minimum and maximum duty cycle settings such that the duty cycle dial has greater resolution near the minimum and maximum duty cycle settings.

13. The timer of claim 11 wherein the duty cycle values increase exponentially from the minimum duty cycle setting to the maximum duty cycle setting.

14. The timer of claim 9 wherein the maximum time base value is at least as large as twenty-four hours and a minimum time base value is at least as small as thirty seconds.

15. The timer of claim 9 wherein the time base dial is a digital switch having thirty-two discrete time base settings.

16. The timer of claim 9 wherein the time base values increase exponentially between the minimum setting and the maximum setting.

17. A timer for controlling the activation time delay or deactivation time delay of a load, the timer including:

a control unit having an internal timer;

a relay unit connected between the control unit and the load,

5 wherein the control unit activates the relay unit to supply power to the load; and

a time base dial coupled to the control unit, the time base dial movable between a plurality of discrete time base settings to set the duration of the time delay in the control unit, wherein the time base settings increase non-linearly from a minimum setting to a maximum setting.

18. The timer of claim 17 wherein the time base dial is a digital switch defining thirty-two discrete time base settings.

19. The timer of claim 17 wherein the time base settings increase exponentially between the minimum setting and the maximum setting.